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PHILOSOPHICAL TRANSACTIONS.

June 20. 1676.

The CONTENTS.

An Account of Virginia, its Scituation, Temperature, Productions, Inhabitants, and their manner of planting and ordering Tobacco, &c. communicated by Mr. Tho. Glover. Advertisement concerning the Quantity of a Degree of a Great Circle, in English measures. Observations made of the late Eclipse of the Sun, June 1. 1676. An Account of some Books: I. ELEME^NS des MATHEMATIQUES, ou Principes Generaux de toutes les Sciences qui ont les GRANDEURS pour objet; par J. P. à Paris. II. L'ART de PARLER, à Paris. III. The manner of raising, ordering and improving Forrest-Trees; also how to plant, make and keep Woods, Walks, Avenues, Lawns, Hedges, &c. With Rules how to divide Woods and Land, and how to measure Timber, and other solid Bodies, by e Mr. Cook. IV, and V. The French Gardiner; to which is annex't the English Vineyard vindicated; and the way of making and ordering Wines in France.

An Account of Virginia, its Scituation, Temperature, Productions, Inhabitants, and their manner of planting and ordering Tobacco, &c. Communicated by Mr. Thomas Glover, an ingenious Chirurgion that hath lived some years in that Country.

Virginia being a part of the Continent of America, is distant from the Lizard or Lands-end of England a thousand Leagues, and is bounded on the East with the main Ocean, on the West with the Appal-lean Mountains, on the North with De la wares-bay and River, and on the South with the River of Roanock; the Country lieth within a Bay called the Bay of Chispeek; the mouth or entrance whereinto is due west, being about six leagues in Breadth, and runneth up into the Country North and by East about one hundred Leagues, continuing the forementioned breadth a great part of the way, but narroweth by degrees towards the upper end about one half: The water in the Channel is for the most part nine fathom, but in some places not above seven: The Southernmost Cape of this Bay lieth in 37 degrees and odd minutes North-latitude, and within

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the same are divers little Islands, upon some of which there are Plantations.

Into this Bay do issue so many large, pleasant and commodious Rivers, as I verily believe no space of ground of equal dimensions in the whole world can boast of the like: The most eminent of these are, *James River*, *York*, *Rapa han-nock*, *Poto-mack*, *Potuxen*, and *Choptanck*; the four last retain their *Indian* names. At the head of the Bay do enter three large Rivers, one whereof is called *Sus-ca-hannah*, from a Nation of *Indians* so called, bordering on the same; the names of the other two I do not well remember. Besides these, there are twice as many as navigable as these, but by reason they run not above thirty or forty miles, I shall forbear inserting any of their names. *Potomack*, the largest of all the rest, is at the mouth ten miles broad, and continueth that breadth for twenty miles up; from which place it is six miles broad, and continueth that breadth for thirty miles higher, and is in length about two hundred miles. This River lieth about the middle of the Bay, and divideth the Government between my Lord of *Baltimore* and *Sr. Will. Bartlet*; the other Rivers, whose names are here inserted, are most of them two Leagues broad at the mouth, and some of them a hundred and fifty, others a hundred and twenty miles in length.

The *Tides* are scarce discernible, when the winds hold at North-west; but at other times they flow as they do in *England*, only they appear not so large; the reason whereof may be, because the Tide diffuseth it self into so many spacious Rivers; neither is it needful, in regard the Bay and Rivers are deep enough without the help of the Tide to receive the biggest Ship in the world; only it is helpful to bring in vessels when the winds are small or opposite.

In the Rivers are great plenty and variety of delicate Fish; one kind whereof is by the English called a *Sheepshead*, from the resemblance the eye of it bears with the eye of a Sheep: This fish is generally about fifteen or sixteen inches long, and about half a foot broad; it is a wholesom and pleasant fish, and of easie digestion. A Planter does oftentimes take a dozen or fourteen in an hours time, with hook and line.

There is another sort which the English call a *Drum*; many of which are two foot and a half or three foot long. This is likewise a very good fish, and there is great plenty of them. In the head of this fish there is a jelly, which being taken out and dried in the Sun, then beaten to powder and given in broth, procureth speedy delivery to women in labour.

At the heads of the Rivers there are *Sturgeon*, and in the Creeks are great store of small fish, as *Perches*, *Crokers*, *Taylors*, *Eels*, and divers others whose names I know not. Here are such plenty of *Oysters* as they may load ships with them. At the mouth of *Elizabeth* River, when it is a low water, they appear in rocks a foot above water. There are also in some places great store of *Muscles* and *Cockles*; there is also a fish called a *Sting-ray*, which much resembleth a *Skate*, only on one side of his tayl grows out a sharp bone like a bodkin about four or five inches long, with which he strikes and wounds other fish, and then preys upon them.

And now it comes into my mind, I shall here insert an account of a very strange Fish or rather a Monster, which I happened to see in *Rapa-han-nock* River about a year before I came out of the Country; the manner of it was thus:

As I was coming down the forementioned River in a Sloop bound for the Bay, it happened to prove calm; at which time we were three leagues short of the rivers mouth; the tide of ebb being then done, the sloop-man dropped his grap-line, and he and his boy took a little boat belonging to the sloop, in which they went ashoar for water, leaving me aboard alone, in which time I took a small book out of my pocket and sate down at the stern of the vessel to read; but I had not read long before I heard a great rushing and flashing of the water, which caused me suddenly to look up, and about half a stoncs cast from me appeared a most prodigious Creature, much resembling a man, only somewhat larger, standing right up in the water with his head, neck, shoulders, breast, and waste, to the cubits of his arms, above water; his skin was tawny, much like that of an *Indian*; the figure of his head was pyramidal, and slick, without hair; his eyes large and black, and so were his eye-brows; his mouth very wide, with a broad, black streak on the upper lip, which turned upwards at each end like mustachoes; his countenance was grim and terrible; his neck, shoulders, arms, breast and waist, were like unto the neck, arms, shoulders, breast and waist of a man; his hands, if he had any, were under water; he seemed to stand with his eyes fixed on me for some time, and afterward dived down, and a little after riseth at somewhat a farther distance, and turned his head towards me again, and then immediately falleth a little under water, and swimmeth away so near the top of the water, that I could discern him throw out his arms, and gather them in as a man doth when he swimmeth. At last he shoots with his head downwards, by which means he cast his tayl above the water, which exactly resem-

bled the tayl of a fish with a broad fane at the end of it.

On the Bay and Rivers feed so many wild fowl, as in winter time they do in some places cover the water for two miles; the chief of which are wild *Swans* and *Geese*, *Cormorants*, *Brants*, *Shield-fowl*, *Duck* and *Mallard*, *Teal*, *Wigeons*, with many others.

There likewise keep in the Rivers *Bevers* and *Otters*; the *Bevers* have their teeth so strong and sharp, that they gnaw down trees, wherewith they make damms cross the waters, under which they keep, which are usually called *Bever-damms*, and in some places serve in the room of foot-Bridges.

The original springs, that make all these Rivers, arise at the foot of the *Appa-lean* Mountains; but the *Cataracts* or falls of the Rivers are sixty or seventy miles distant from the Mountains.

These Mountains have their beginning Northward at the Lake of *Canada*, and run along the back of the Country to the South-west as far as the lake *Usserre*, which is some hundreds of Leagues.

There was one Colonel *Caslet*, that was a good Mathematician, who with some other Gentlemen took a Journey to make some further discoveries of the Country to the Westward, and arriving at the foot of the Mountains early in the morning, they left their horses, and endeavoured to gain the tops of the Mountains, which they accomplished about four of the clock in the afternoon, and then looking further forward they discovered other Mountains; whereof they took the altitude and judged them inaccessible; which discouraged them from any further attempts, their design being chiefly to discover whether there were any Rivers that ran into the South-ocean.

Above five years since there was a German Chirurgeon, who obtained a Commission from *Sr. Will. Bartlet* to travel to the South-west of *Virginia*, and to make discovery of those parts: He went along the foot of the Mountains as far as the Lake of *Usserre*, and discovered them to be passable in two places, and he gives a relation, that, while he was in an Indian town adjacent to the Mountains, there came four Indians on an Embassie to the King of that town, from a King that lived on the other side of the Mountains, who by the commandment of the King on this side were all strangled, with which barbarous usage he was much abashed, fearing the like cruelty; but they proved more civil to him, permitting him to depart in safety.

At his return he brought an *Emerald*, and some *Spanish* mony, which he said he had of the Indians bordering on the Lake of *Usserre*,

Usserre, which caused some to think that some *Spaniards* are seated near upon the back of the Mountains.

Having hitherto discoursed of the Bay, Rivers, and Mountains, I shall now make some entrance into the Land; and first of the shores, which all along the Bay and Rivers are for the most part sandy, but only in some points there is some shingle cast up: but the Earth affordeth very few Stones, and those that are there, are almost all of them hard & transparent. I have taken up several stones, that would cut glass as well as any Diamond. Sr. *Henry Chichely* had a stone, that was taken up by the Rivers side, which he put into a Ring, for which Ring he hath been profer'd fifteen pounds; and I do verily think, that there are some stones gathered there that do abate the price of Diamonds; for I have seen several Rings of *Virginia* stones, which in my judgment have equalled Diamonds in lustre.

The Chiefs of all the Rivers are full of great veins of *Iron-mine* and in some places of the Countrey I have seen Rocks of the same to lye a foot above the Earth; and generally all the high Lands under the mould are a meer Rock of Iron; the consideration whereof together with the infinite plenty of wood did cause me with admiration to enquire, why they did not endeavour the improvement of that advantage which God and Nature had put into their hands, by running of this Mineral; but I was answer'd, That an Iron-work would cost three thousand pounds, and the Countrey being generally poor, were discouraged from the attempt by reason of the charge. I believe the true reason is, their being so intent on their *Tobacco-Plantations* that they neglect all other more Noble and advantageous improvements, whereof the Countrey is capable, which without doubt are many. For in their planting Tobacco they find greatest encouragement from *England*, by reason of the vast revenue it brings into the *Exchequer*.

They distinguish their soil into three sorts, *viz.* High, low and marshy Land; all which have some sand mix'd in them, that makes their Land warmer than ours is in *England*. Their high Lands are most sandy, but do notwithstanding bear very good Crops of Tobacco; only it does not hold its strength so long as the low ground, which is very rich, being a blackish mould about a foot deep, or somewhat more, and will hold its strength for seven or eight Crops successively without manuring. Their Marshlands bear sedges and rushes after the manner of ours; and of these they have not endeavoured any improvement as yet. Their Land in general is as good and fertile as the Land of *England*; when the strength of their ground

ground is worn out they never manure it to bring it in heart, but let it lie for pasture for all Mens Cattel to graze upon, and clear more ground out of the Woods to plant in.

As to the *Timber* of this Countrey, there are divers kinds; four several sorts of *Oak*, very tall and smooth. There is also another sort of Timber called *Hickery*, that is harder than any *Oak*. There are also very large and tall *Poplars*; and in some parts of the Countrey great store of *Pines*, fit for Masts of Ships: There is likewise black *Walnut*, *Gipress*, *Cedar*, *Dogwood*, *Ash*, *Elm*, *Gum-tree*, *Locust*, *Chestnut*, *Hassel*, *Sassafras*, *Holly*, *Elder*, with several others.

As to the *Fruit-Trees* of the Countrey, it affords great plenty: For there are few Planters but that have fair and large Orchards, some whereof have twelve hundred Trees and upward, bearing all sorts of *English Apples*, as *Pear-mains*, *Pippins*, *Russetens*, *Costards*, *Mari-golds*, *Kings-apples*, *Magitens*, *Batchelours*, and many others, of which they make great store of Cider.

Here are likewise great *Peach-Orchards*, which bear such an infinite quantity of Peaches, that at some Plantations they beat down to the Hogs fourty bushels in a year.

Here are also great store of *Quinces*, which are larger and fairer than those of *England*, and not so harsh in taste; of the juice of these they also make Quince-drink.

Here are likewise *Apricocks*, and some sorts of *English Plums*, but these do not ripen so kindly as they do in *England*.

There are some sorts of *Pears*, but at very few Plantations; I have seen the *Bergamy*, *Warden*, and two or three other sorts, and these are as fair, large and pleasant as they are in *England*.

Here grow as good *Figgs*, as there do in *Spain*, but there are few planted as yet.

Those that take the pains to plant *Goose-berries*, have them; but I never saw any of our *English Currants*, (*Riberries*) there, and it is observ'd, that *Oranges* and *Lemons* will not grow there, though they do in more Northern Countries.

I had almost forgot to mention their *Mulberry-Trees*, whereof they have good store about their Houses; these were planted at first to feed Silk-worms, but that design failing, they are now of little use amongst them.

The meanest Planter hath store of *Cherries*, and they are all over *Virginia* as plentiful as they are in *Kent*. The Cherry-Trees grow more large generally than they do in *England*, and bear more plentifully without any pains-taking of digging about them, or pruning them.

There

There groweth wild in some places of the Woods a Plum somewhat like our *Wheat-Plum*, but it doth exceed it, being much more succulent.

In the Woods there are abundance of *Vines*, which twine about the Oaks and Poplars, and run up to the top of them; these bear a kind of *Claret-grapes*, * of which some few of the Planters do make Wine, whereof I have tasted; it is somewhat smaller than *French Claret*; but I suppose, if some of these Wines were planted in convenient vine-yards, where the Sun might have a more kindly influence on them, and kept with diligence and seasonable pruning, they might afford as good grapes as the *Claret-Grapes* of France are. * These Vines have very large Bodies.

There is also in the Woods a little Shrub which beareth a Berry like our *Elder-berry*, and is a very pleasant Berry to eat.

I lately made mention of the *Chestnut*, *Walnut* and *Hazel-Tree*, which all of them bear their several Nuts; and beside these, here is another called a *Chincopine*, which is like a Chestnut, with a Burry husk, but lesse by far.

Their Gardens have all sorts of *English* Pot-herbs, and sallets; they have *Cabbages*, *Colworts*, *Colly flowers*, *Parsnips*, *Turnips*, *Carrets*, *Potatoes*, and *Yams*; and such Herbs as grow wild in *England*, and do not grow there, they plant, as *Wormwood*, *Fetherfew*, *Houseleek*, *Cardus Benedictus*, *Rue*, *Coriander*, *Enula*, and the like.

They have likewise in their Gardens *Roses*, *Clove-Gillflowers*, and variety of other sorts of Flowers.

There grow wild in the Woods, *Plantane* of all sorts, *Yellow-Dock*, *Bur-Dock*, *Solomons-seal*, *Egrimony*, *Centory*, *Scabious*, *Groundsel*, *Dwarf-Elder*, *Yarrow*, *Purslan*, and white *Maiden-hair* the best that ever I saw. Upon the sides of the Hills, *Asarum*; and on the Bay-side, *Soldanella* or *Sea-Scurvygrass* in great plenty.

Here groweth the *Radix Serpentaria Nigra*, which was so much used in the last great pestilence, that the price of it advanced from ten Shillings to three pounds sterling a pound: Here is also an herb which some call *Dittany*, others *Pepper-wort*; it is not *Dittany of Candia*, nor *English Dittander*; it groweth a foot or a foot and half high, the leaves are about the bredth of a groat, and figur'd like a heart, and short out of the stalk and branches one of a side directly opposite to each other; it smelleth hot like *Pepper*, and biteth upon the Tongue. The water of this herb distill'd out of a Limbeck, is one of the best things I know to drive worms out of the Body; and an ounce of this water taken, provoketh sweat plentifully.

Here

Here grow two Roots, which some Physicians judg, the one to be *Turbith*, the other *Mechoacan*; but whether they be the right or no, I could not well judg. Both these Roots are purging, and in their operations much like those we have at the Apothecaries, only somewhat more forcible; the reason may be, because there we have them more new and succulent.

Here groweth a Plant about a foot and half or two foot in height, the leaves are rugg'd like to a Borage leaf, but they are longer, and not above two fingers broad; about the stalk, where the leaves grow out, there hang Berries, which being ripe are yellow: The *English* call it the *Fever* and *Ague-root* This Root being newly taken out of the ground, and a dram and half of it infused in beer or water the space of twelve hours, purgeth downward with some violence, but I have given a dram of the Root in powder, and then it only moveth sweat, and that but moderately. It is a little bitter in taste, and therefore somewhat hot.

There are great numbers of Herbs, whose names, nature, virtues and operations are altogether unknown to us in *Europe*; neither have there been any *Physicians* in those parts that have made it their business to understand much of them; but if the use of them were well known, it might prove a great and beneficial addition to the *Materia Medica*.

Now I have done with the Plants, I will render some account of their stocks of *Cattel*, which are greater than ours, considering the quantity of People, and might be much larger than they are, were the Inhabitants as careful in looking after them and providing fodder for them as they in *England* are. All that they give their Cattel in winter is only the husks of their *Indian Corn*, unless it be some of them that have a little wheat-straw; neither do they give them any more of these than will serve to keep them alive, by reason whereof they venture into the Marshy grounds and swamps for food, where very many are lost.

They have as great plenty of Horses, and as good as we have in *England*.

As to their *Sheep*, they keep but few, being discouraged by the Wolves, which are all over the Countrey, and do much mischief amongst their Flocks.

In the Woods are great store of *Deer*, and some *Rabbets*, which are generally mistaken for Hares.

There are also several sorts of ravenous Beasts, as *Wolves*, *Raccoons*, *Wild cats*, *Possums*, *Monacks*, *Flying Squirrels*, with two other sorts;

sorts; and in the Northern most parts of the Countrey some *Bears*.

The Fowls that keep the Woods are, wild *Turkies*, *Turkie Buzzards*, *Turtle-Doves*, *Partridges*, *Hawks* of several sorts, which many others of less note.

There are also divers kinds of small Birds, whereof the *Mocking-bird*, the *Red-bird*, and *Humming-bird*, are the most remarkable; the first, for variety and sweetness of notes, the second for his colour, and the last for the smallness of his body. As to the *Mocking-bird*, besides his own natural notes, which are many and pleasant, he imitateth all the birds in the woods, from whence he taketh his name; he singeth not only in the day, but also at all hours in the night, on the tops of the Chimneys; he is strangely antick in his flying, sometimes fluttering in the air with his head right down and tail up, other times with his tail down and head up; being kept tame, he is very docible. The *Red bird*, as I hinted before, taketh his name from his colour, being all over of a pure blood-red. The *Humming-bird* taketh his name from the noise he makes in flying: This is of divers colours, and not much bigger than a *Hornet*, and yet hath all the parts of a bird entire.

There are five or six sorts of *Snakes*, amongst which the *Rattle-Snake* is most remarkable, being about the bigness of a mans leg, and for the most part a yard and a half long; he hath a Rattle at the end of his Tail, wherewith he maketh a noise when any one approacheth nigh him, which seemeth to be a peculiar providence of God to warn people to avoid the danger; for this Creature is so venomous, that the bite of it is of most dangerous consequence, unless they speedily make use of the proper antidote; of which I shall take occasion to speak somewhat hereafter. There are also long *black Snakes*, short and thick *black Snakes*; this latter sort often times sucks the Cows, and causes them to give bloody milk. There is another sort called the *Corn-Snake*, because he is usually found in Corn-fields; this is near as big as the *Rattle-Snake*. There are also some other sorts of *Land-Snakes*, all of which are more or less venomous; besides there are very many *Water-Snakes*, that keep the Springs and Rivers.

Of the Indians themselves.

The *Indians* are generally well proportioned as to their stature, being somewhat tall, but no waies corpulent; their hair black, usually hanging right down; their eyes also black, their skin tawny, inclining to blackishness; they live together in Towns, and every town is under a several King: At the first coming of the

English divers Towns had two or three thousand Bow-men in them; but now, in the Southern parts of *Virginia*, the biggest Indian Town hath not above five hundred Inhabitants; many Towns have scarce sixty Bow-men in them, and in one Town there are not above twenty, and they are so universally thinned in the forementioned Southern part, that I verily believe there are not above three thousand left under the whole government of Sir *Will. Bartlet*; but in my Lord of *Baltimores* territories at the head of the Bay, where the *English* were later seated, they are more numerous, there being still in some Towns about three thousand *Indians*. But these being in continual wars with each other, are like shortly to be reduced to as small numbers as the former.

Instead of Cloaths they wear a *Deer-skin* tacked about their middle, and another about their shoulders, and for Shoes they have pieces of *Deer-skin* tied about their feet.

Their habitations are Cabins, about nine or ten foot high, which are made after this manner: They fix Poles into the ground, and bring the tops of them one within another, and so tie them together: the outside of these poles they line with bark to defend them from the Injuries of the weather, but they leave a hole on the top, right in the middle of the Cabin for the smoak to go out; round the inside of their Cabins they have banks of Earth cast up, which serve instead of stools and beds; they have no kind of household-stuff but Earthen-pots, Wooden bowls, and thin Mats to lie on; all which they make themselves.

Their diet is *Indian* Corn, Venison, wild Turkies, Oysters, and all kind of Fish the Rivers afford; and all kind of wild Beasts of the Woods.

They are prohibited the keeping either Cows, Sheep or Hogs, by the *English*, lest they should make bold with more than their own.

They did formerly catch their fish after an odd manner before the *English* came amongst them, which was thus: At the head of their *Canoes* they fixed a Hearth, on which in a dark night they would make a blaze with fire put to the shivers of *Pine tree*; then they would paddle their *Canoes* along the shoar in shoal-water; the fish seeing the light would come as thick as they could swim by each other about the head of the *Canoes*; then with sticks that were pointed very sharp at the ends, they would strike through them and lift them up into the *Canoe*: But now they have learned of the *English* to catch fish with hook and line, and sometimes

times the *Engliſh* do uſe their way in dark nights, only they ſtrike with an Inſtrument of Iron ſomewhat like Mole-tines.

As to their Worſhip, I know little of it ; only they have Priests which are generally thought to be Conjurers ; for, when they have great want of Rain, one of their Priests will go into a private Cabin, and by his Invocations will cauſe abundance to fall immediately, which they call making of Rain.

They offer the Firſt fruits of all things ; the firſt *Deer* they kill after they are in ſeaſon, they lay privately on the head of a Tree near the place where they killed it, and they ſay, no good luck will befall them that year if they do not offer the firſt of every thing.

They burn the Bodies of the dead ; and ſow up the aſhes in Mats, which they place near the Cabbins of their Relations.

Some of them ſay, that the God of the *Engliſh* is a good God, and gives them good things ; but *their* God is an angry God, and oftentimes beats them.

Almoſt every Town differs in language, and yet not any of their languages copious ; as may be ſeen by their frequent expreſſing their meaning to each other by ſigns.

Their mony is of two ſorts, one whereof is made of a white kind of ſhell, which being divided into ſmall parts, they put them on a ſtring after the manner of Beads ; this they call *Peacke* : The other is of a blew ſhell ordered in the ſame manner, which they call *Rounda* ; this laſt is the meaner ſort, about half a yard whereof is of equal value with our nine pence. The chief of the *Indians* do wear ſome of this on the *Deer*-skins about their bodies, laid on like lace.

They have nothing to trade with but *Deer* ſkins, and ſome *Bever*, which they exchange with the *Engliſh* for Guns, Gunpowder, Shot and Brandy ; having nothing before but Bows and Arrows, wherewith they killed their *Deer* and other wild Beaſts.

They have no other account of Time but by the changes of the Moon.

Their Winter is uſually in *November*, *December* and *January*.

They are very revengful ; for, if any one chance to be ſlain, ſome of the Relations of the ſlain perſon will kill the murderer or ſome of his family, though it be two or three generations after, having no juſtice done amongſt them in this reſpect but what particular perſons do themſelves ; if that may be termed juſtice.

The *Indians* being a rude sort of people use no Curiosity in preparing their Physick ; yet are they not ignorant of the nature and uses of their plants , but they use no correctives to take away the flatuous,nauseous, and other bad qualities of them. They either powder, juyce, infuse or boyl them, till the decoction be very strong.

Their usual way of cure for most inward distempers is by decoction, which they make partly pectoral , partly sudorifick ; these they cause the sick to drink, the quantity of half a pint at a time, two or three times a day ; but they give nothing to procure vomiting in any distempers , as a bad omen that the diseased will die ; neither did I ever know them to use any waies of Bleeding or Cupping.

If they have any Wounds, Ulcers or Fractures , they have the knowledge of curing them. I did once see an *Indian* whose arm had been broken, and viewing the place, I found the bones to be as smoothly consolidated, and as well reduced, as any *English* Chirurgion could have done it.

All *Indians* carry a Powder about them to cure the bites of *Snakes* , and in almost every Town this powder hath a different composition , and every composition is certainly effectual to the correcting the malignity of the Venom. Neither was it ever known to us, that any *Indian* suffered much harm by these bites , but in a daies time he would be as well as if he had never been bitten : Whereas some of the *English* for want of a speedy remedy have lost their lives.

The *Indians* are frequently troubled with Violent Colicks , which oftentimes terminate in Palsies.

The manner of planting and ordering Tobacco.

In the Twelve-daies they begin to sow their seed in beds of fine Mould, and when the Plants be grown to the bredth of a shilling , they are fit to replant into the Hills ; for in their Plantations they make small hills about four foot distant from each other, somewhat after the manner of our Hop-yards ; These hills being prepared against the plants be grown to the forementioned bigness (which is about the beginning of *May*,) they then in moist weather draw the plants out of their beds , and replant them in the hills, which afterwards they keep with diligent weedings. When the plant hath put out so many Leaves as the ground will nourish to a substance and largeness that will render them Merchantable , then they take off the top of the plant ; if the ground be very rich, they let

a plant put out a dozen or sixteen leaves before they top it ; if mean, then not above nine or ten, and so according to the strength of their soyl, the top being taken if the plant grows no higher ; but afterwards it will put out suckers between their leaves, which they plack away once a week , till the plant comes to perfection, which it doth in *August*. Then in dry weather, when there is a little breez of wind, they cut down what is ripe, letting it lie about four hours on the ground, till such time as the leaves , that stood strutting out, fall down to the stalk ; then they carry it on their shoulders into their Tobacco-houses, where other Servants taking of it, drive into the stalk of each plant a peg, and as fast as they are pegg'd, they hang them up by the pegs on Tobacco-sticks, so nigh each other that they just touch , much after the manner they hang Herrings in *Yarmouth* ; thus they let them hang five or six weeks, till such time as the stem in the middle of the leaf will snap in the bending of it ; then, when the Air hath somoistned the leaf as that it may be handled without breaking, they strike it down , strip it off the stalk, bind it up in bundles , and pack it into Hogsheds for use.

Sometimes they are forced to plant their hills twice or thrice over, by reason of an Earth-worm which eats the root , and when the plant is well grown they suffer damage by a Worm that devours the leaf, called a *Horn-worm* (an *Eruca* or Caterpillar) which is bred upon the leaf ; if these worms be not carefully taken off, they will spoil the whole Crop.

In the Year. 1667 in *August* there happened all over *Virginia* a gust or storm of Wind and Rain , which continued for three daies with such violence that the like was hardly ever heard of, it began and continued blowing at East with such fierceness, that above one half of the crop of their Tobacco which was then standing in their fields was blown away and torn apieces ; the Trees in the Woods all over the Country were blown up by the roots in an innumerable quantity : The Waters in the Bay in some places were drove a great way into the Woods, and the greatest part of those that housed Tobacco, had their Tobacco-houses blown down and their Tobacco spoiled ; so that there was not fully one part of three saved of what would have been made that year.

The Planters houses are built all along the sides of the Rivers for the conveniency of Shipping ; they build after the *English* manner, whitening the inside of their houses with Mortar , made of burnt Oyster-shells instead of lime. They have pure and wholesome
water,

water, which they fetch wholly from Springs, whereof the Country is so full, that there is not a house but hath one nigh the door.

Advertisement concerning the Quantity of a Degree of a Great Circle, in English measures.

Some while since an account was given* concerning the *Quantity of a Degree of a great Circle*, according to the tenour of a printed *French* Discourse, entituled *De la*

* See N. 112, and N. 124 of *this* Tract. *Mesure de la Terre*. The Publisher not then

knowing what had been done of that nature here in *England*, but having been since directed to the perusal of a Book, composed and published by that known Mathematician *Richard Norwood* in the year 1636, entituled *The Seaman's Practice*, wherein, among other particulars, the compass of the *Terraqueous Globe*, and the *Quantity of a Degree* in *English* measures are deliver'd, approaching very near to that, which hath been lately observ'd in *France*; he thought, it would much conduce to mutual confirmation, in a summary Narrative to take publick notice here of the method used by the said *English* Mathematician, and of the result of the same; which, in short, is as follows:

A. 1635 the said Mr. *Norwood*, Reader of the Mathematicks in *London*, observ'd, as exactly as he could, the Summer-Solstitial Meridian Altitude of the Sun in the middle of the City of *York*, by an Arch of a Sextant of more than five foot *radius*, and found it to be 59 deg. 33'. And formerly (*vid. A. 1633.*) he had observ'd the like Altitude in the City of *London* near the *Tower* to be 62 deg. 1'. Whereupon he actually measured, for the most part, the way from *York* to *London* with Chains, and where he measur'd not, he paced it, (wherein, *he saith*, through custom he usually came very near the truth;) observing all the way he came, with a *Circumferentor*, all the principal Angles of position or windings of the way, with a competent allowance for other lesser Windings, Ascents and Descents; not laying these down by a *Protractor* after the usual manner, but framing a *Table* much exacter and fitter for this purpose; as may be seen in the *English* book it self. And by this Method and Measure he found the Parallel of *York* from that of *London* to be 9149 chains, every chain being six poles or ninety nine feet, $16\frac{1}{2}$ *English* feet to a Pole. Now, these 9149 Chains being equal to 2 deg. 28'. (the aforesaid Latitude between those two Cities) a little calculation makes it appear, that one Degree of a Great Circle, measured on the Earth, is 367196 of our feet, *numero rotundo* 367200, or 22254 Poles; which make 556 Furlongs and 14 Poles,